

## PRELIMINARY HAND - BOOK OF THE COLEOPTERA OF NORTH EASTERN AMERICA.

By CHARLES W. LENG & WM. BEUTENMÜLLER.

The species treated in the following pages are those enumerated in the "List of the Coleoptera of N. E. America" thus far published, with some additions made known to us by readers of the Journal. We aim to include all that are likely to be found by collectors in Philadelphia, New York, New England, Canada and westward to Illinois. We do not aim to express any opinions on the validity of the species but accept the published opinions of students of our fauna; where the species seems to us very closely allied, we have indicated the fact that the reader may be saved looking for striking differences where none exist.

It is our intention to continue the work of publishing the Hand-book, but, in view of the uncertainty of serial publication, we do not make any promises to do so.

We hope the reader will bear in mind that the work is preliminary and by correcting the errors which meet his eye, assist us in making the final pages accurate.

In describing the markings of the Cicindelidæ, the following terms are used:

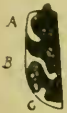


Fig. 1.

Fig. 1. when the markings are in bands  
A is called humeral lunule,  
B " middle band,  
C " apical lunule.

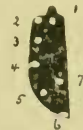


Fig. 2.

Fig. 2. when the markings are in dots  
1 is called basal dot,  
2 " humeral dot,  
3 " posthumeral dot,

4 is called marginal dot, 5 " anteapical dot,		6 is called apical dot, 7 " discal dot.
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### Cicindelidæ.

Tarsi all five-jointed; antennæ slender, inserted on the front above the base of the mandibles; legs slender, adapted to running; eyes prominent; habits terrestrial.

#### *Table of genera.*

3d-joint of maxillary palpi longer than the 4th . . . . .	<b>Tetracha.</b>
3d-joint of maxillary palpi shorter than the 4th . . . . .	<b>Cicindela.</b>

### Tetracha.

**T. carolina** L., Fig. 1.—Light gold-green; tip of abdomen, apical lunule of elytra, legs and antennæ luteous; thorax smooth; elytra coarsely punctured, purple at the middle, margin bright green. Length, 30 mm. = .80 inch.

*Habitat*, So. Ill., and generally throughout the southern and southwestern states.

**T. virginica** L.—Dark gold-green; last ventral segment, legs and antennæ ferruginous; thorax smooth; elytra more coarsely punctured than in *carolina*, black at middle, broad lateral margin metallic green, without lunule. Length 20—24 mm. = .80—.96 inch.

*Habitat*, So. N. J., Pa., So. Ohio, Ind., Ky. and throughout the southern states.

These two species are nocturnal in their habits, hiding during the day under chips and stones. The larva lives in holes in the ground, at the entrance to which it lies in wait for prey.

### Cicindela.

#### *Synopsis of species.*

Humeral angles wanting, wingless.

Sericeous brown with imperfect white markings . . . . . **celeripes.**

Humeral angles distinct, winged species. <sup>\*</sup> <sup>\*</sup> <sup>\*</sup> Underside unicolorous metallic blue or green.

Thorax flattened, elytra flat.

Dull brown; underside glabrous; elytra roughly foveate and punctured with marginal dot white . . . . . **unipunctata.**

Underside hairy; elytra with humeral, posthumeral and anteapical dot and reclivate nearly transverse middle band dull brown . . . . . **longilabris.**

Green with humeral lunule nearly or quite complete, *var.* **perviridis.**

Thorax convex, not margined, narrowed behind, elytra convex;

Marginal markings; (scutellaris varieties).

Surface green with posthumeral marginal dots and apical lunule sometimes wanting . . . . . *var.* **rugifrons.**

Surface black with same dots . . . . . *var.* **modesta.**

Surface purplecupreous with same dots sometimes confluent at margin . . . . . *var.* **Lecontei.**

Normal markings, the humeral often broken or wanting:

Front striate, glabrous; elytra strongly punctured;

Green with marginal apical and anteapical and sometimes a discal dot . . . . . **sexguttata.**

Green with same dots also humeral and posthumeral dots and a middle band . . . . . *var.* **patruela.**

- Black with same markings . . . . . *var. consentanea*,
- Front striate, pilose with erect hair; elytra moderately punctured;
- Reddish-cupreous, oblique sinuate band and apical dot (sometimes antepical dot also) . . . . . *purpurea*,
- Black with same marks . . . . . *var. spreta*,
- Head and thorax green, elytra cupreous with short middle band and apical dot, . . . . . *var. splendida*,
- Humeral lunule, middle band and apical lunule complete; beneath green . . . . . *var. limbalis*.
- Thorax convex, not margined, subquadrate; elytra convex; palpi ♂ usually pale at base.
- Normal markings complete, broad, connected by white margin;
- Metallic brown, middle band deflexed . . . . . *formosa var. generosa*.
- Normal markings complete, narrow, not connected; metallic brown;
- Humeral lunule long, slightly prolonged obliquely;
- Middle band rectangularly bent extending along margin . . . . . *ancocisconensis*.
- Humeral lunule greatly prolonged;
- Middle band extended but little along margin . . . . . *vulgaris*,
- Humeral lunule c-shaped, markings complete . . . . . *repanda*,
- All the markings broken . . . . . *var. 12-guttata*,
- Thorax convex, quadrate; thorax very hairy.
- Normal markings complete;
- Humeral lunule inflexed and bent upward at tip . . . . . *hirticollis*.
- Thorax subcylindrical; front bald; elytra with row of green foveae near suture;
- Markings all broken except apical lunule . . . . . *punctulata*,
- Markings normal, middle band confused . . . . . *tortuosa*,
- Thorax broadest behind; elytra broad, depressed with tip in ♀ angulated.
- Elytra white with irregular green markings . . . . . *dorsalis*.
- Underside unicolorous, but hind <sup>\* \* \*</sup>trochanters rufous, elytral tips different in sexes.
- Anus green; cupreous or bronze; markings of the normal type with a basal dot added.
- Outer margin, elytra entire, suture ♂ retracted . . . . . *marginata*.
- Outer margin, elytra sinuate in both sexes } *cuprascens, puritana,*  
and dentate  $\frac{1}{4}$  from tip in female, } *macra*.
- Anus testaceous; elytra white with a few dark lines . . . . . *lepida*.
- <sup>\* \* \*</sup>
- Underside partly rufous.
- Markings of dots sometimes connected;
- Dots minute, rarely connected . . . . . *rufiventris*,
- Dots larger, usually connected at least in part . . . . . *Hentzii*,
- Markings, a marginal band indented where normal markings should be; opaque greenish brown above . . . . . *marginipennis*,
- Markings reduced to apical lunule and minute dots; black, shining . . . . . *abdominalis*,

**C. celeripes** *Lec.* (Fig. 3)—Humeral angles wanting, wings aborted; underside unicolorous, brown bronze; above brown bronze with variable white markings, usually a discal dot, a marginal dot or line and a faint apical lunule; sometimes there are minute additional dots.

*var. cursitans* *Lec.*—The elytra are less deeply punctured and the markings are usually reduced to the apical lunule. Length, 7.5—8.5 mm. = .30—.34 inch.

*Habitat*, South Illinois and westward to Dakota.

**C. unipunctata** *Fab.* (Fig. 2)—Humeral angles distinct; underside unicolorous dark blue; above brown with marginal white dot. Head and thorax granulate; elytra rough with dispersed green foveae and irregular green punctures. Length 16—18 mm. = .64—.72 inch.

*Habitat*, N. Y., N. J., Pa., N. C., Ga., Mo., Ky. Very rare near N. Y. City, Da Costa, N. J., July 3. Rare at Pittsburg, not rare near the Allegheny Mts.

**C. longilabris** *Say.* (Fig. 6)—Humeral angles distinct, underside unicolorous, purple black or dark green; above dark brown with humeral, posthumeral and anteapical dots and a reclivate nearly transverse middle band; elytra densely punctured with a row of faint large foveae near the suture. Length, 16—18 mm. = .64—.72 inch.

*Habitat*, N. H., Canada, Nova Scotia, Newfoundland, throughout the northwestern part of America to Yukon River, Alaska and in the Mountains of Colorado.

*var. perviridis* *Schauff.* (Fig. 7)—Identical with *longilabris*, except that the color is green, the humeral lunule entire, and the elytral punctures and foveae are less distinct.

*Habitat*, Newfoundland, also Cal., Or. and Utah.

There are other varieties of *longilabris* which occur in Montana, Neb., Utah and Colo., but have not been reported from N. E. America and are therefore omitted.

**C. scutellaris** *Say.* *var. rugifrons* *Dej.* (Fig. 5)—Humeral angles distinct, underside unicolorous green; above green with post-humeral dot, marginal dot and apical lunule, sometimes wanting; head hairy, scarcely rugose; thorax finely rugose, hairy; elytra obtusely punctured; outer side of middle tibiae densely pubescent. Length, 12 mm. = .48 inch.

*Habitat*, Mass., R. I., N. Y., Md. In the neighborhood of N. Y. City at Jamaica, L. I., Lakewood, N. J., in Westchester Co., not common in June and September; also Nantucket, Mass.

*var. modesta Dej.*—Black with same markings.

*Habitat*, N. Y., N. J., Pa., N. Ill., Ont., Tenn. In the neighborhood of N. Y. City this variety is abundant but confined to scattered localities, e.g. Greenville, N. J., Marion, N. J., Watchogue, S. I., and Richmond Valley, S. I. It is double brooded, appearing from April to June and again from September to October in sandy fields.

*var. Lecontei Dej.* (Fig. 8)—Brown, humeral lunule sometimes entire, sometimes connected with apical lunule. Length, 12 mm. = .48 inch.

*Habitat*, Ill., Hamilton, Canada, also Ia. Abundant in sandy openings in the woods.

Other varieties of *scutellaris* occur in the southern states but are not reported further north than Georgia.

**C. sexguttata Fab.** (Fig. 9)—Humeral angles distinct; underside unicolorous green; above green with two to ten white dots; head bald, rugose behind; thorax slightly rugose; elytra strongly punctured. Length, 10—14 mm. = .40—.56 inch.

*Habitat*, N. E. Amer., abundant in the wood parts, often found hiding under loose bark. Common in the neighborhood of N. Y. City from April to August.

*var. patruela Dej.* (Fig. 10)—Green with the same markings and in addition a middle band, consisting of a large marginal dot and a smaller discal dot, connected by a slightly oblique narrow line.

*Habitat*, N. Y., Pa., Md. and Wisc. In the neighborhood of N. Y. City it has been collected at Peekskill in wood paths from June to September.

*var. consentanea Dej.*—Black with same markings as *patruela*.

*Habitat*, N. Y., Pa., Da Costa, N. J., and in Nebraska, but is rare.

**C. purpurea Oliv.** (Fig. 11)—Humeral angles distinct; underside unicolorous bluish green; above reddish cupreous (except in some varieties named below) with oblique sinuate middle band, apical dot and sometimes anteapical dot white; head rugose hairy; thorax granulate rugose; elytra moderately punctured. Length, 14—16 mm. = .56—.64 inch.

*Habitat*, N. E. America. In the neighborhood of N. Y. City this species occurs in pastures and grass-grown roads in March and June and again in September and October; probably double brooded, and *vide* Hamilton certainly hibernates.

*var. limbalis* Klug. (Fig. 12)—Green beneath, margins of elytra brilliant green, markings: humeral lunule, middle band and apical lunule complete.

*Habitat*, N. Y., Ohio, Ky., also Kans and Col.

*var. spreta* Lec.—Black with same markings.

*Habitat*, Maine.

*var. splendida* Heetz.—Head and thorax green or blue, elytra cupreous with short middle band, apical dot and sometimes humeral and anteapical dots also.

*Habitat*, N. Y., N. Ill., and more commonly in Tex, Ks., Neb., Mo. and N. C.

This species is exceedingly variable in the extent of the markings but is easily recognized by the cupreous color.

**C. formosa** Say. *var. generosa* Dej. (Fig. 13)—Humeral angles distinct, underside unicolorous green; above brown aeneous opaque with normal markings broad, the middle band and the apical lunule connected at the margin; head and thorax granulate rugose; elytra punctured. Length, 16.5—18 mm. = .66—.72 inch.

*Habitat*, Mass., N. Y., N. J., Pa. westward to Colorado and Montana.

In the neighborhood of N. Y. City this variety is abundant at Watchogue, S. I., in sandy fields and adjoining roads from April to October. It is double brooded but is found all summer long.

**C. ancocisconensis** Harr. (Fig. 14)—Humeral angles distinct; underside unicolorous green; above brown bronze with normal markings complete but the humeral lunule is scarcely curved, the middle band is obtusely bent and dilated at margin and the apical lunule is anteriorly inflected; head and thorax granulate; elytra punctured. Length, 15 mm. = .60 inch.

*Habitat*, N. H., Mass., N. Y., N. J., Ill.

**C. vulgaris** Say. (Fig. 15)—Humeral angles distinct, underside unicolorous green; above brown bronze with humeral lunule oblique and extraordinarily prolonged, middle band narrow, extended a

little on the margin, apical lunule normal. Length, 13—17 mm. = .52—.68 inch.

*Habitat*, N. E. America, and nearly every part of the United States. In the neighborhood of N. Y. City this species is double brooded, widely distributed but nowhere very abundant. It appears in April and October.

**C. repanda** Dej. (Fig. 16)—Humeral angles distinct, underside unicolorous, green; above brown bronze with humeral lunule c-shaped, middle band rectangularly bent, connected with a marginal line nearly but never quite reaching the lunules, apical lunule normal. Length, 12—13 mm. = .48—.52 inch.

*Habitat*, N. E. America, everywhere the most common of the Cicindelidæ, occurring in roads, fields etc. from April to October.

*var. 12-guttata* Dej. (Fig. 17)—In this form all the markings are broken into dots. Occurs with the typical form but more rarely found.

**C. hirticollis** Say. (Fig. 18)—Humeral angles distinct, underside unicolorous green; above brown bronze with humeral lunule inflexed and bent upwards posteriorly, middle band and apical lunule as in *repanda*. More hairy than that species. Length, 14—15.5 mm. = .56—.62 inch.

*Habitat*, N. E. America, common. In the vicinity of N. Y. City this species occurs on the sea-shore from June to September.

**C. punctulata** Oliv. (Fig. 19)—Humeral angles distinct, underside unicolorous, blue; above dark brown or black with the markings except the apical lunule all broken into minute dots; on each elytra near the suture a row of large green foveæ; legs very long and slender. Length, 12.5—15 mm. = .50—.60 inch.

*Habitat*, N. E. America, abundant from June to October on very dry roads and in the streets of cities at electric lights.

**C. tortuosa** Dej. (Fig. 25)—Humeral angles distinct, underside unicolorous green or blue; above brown or greenish bronze with slender white markings, humeral lunule terminating in a double hook, middle band very tortuous, apical lunule recurved anteriorly towards the suture. Length, 11.5—13 mm.

*Habitat*, Atlantic City, N. J., and southward.

**C. dorsalis** Say. (Fig. 4)—Humeral angles distinct, underside unicolorous bronze, densely clothed with white hair; above white with green or bronze markings, variable and sometimes lacking.

Thorax ♀ dilated posteriorly, elytra ♀ angulated behind the humeri. Length, 14.5—15 mm. = .56—.60 inch.

*Habitat*, Atlantic sea-shore only from N. Y. southward. In the vicinity it occurs from July to September.

**C. marginata** *Fab.* (Fig. 20)—Humeral angles distinct, underside green bronze, hind trochanters rufous; above brown or green bronze with basal dot, oblique humeral lunule hooked at tip, a slender long tortuous middle band bent and confused, right mandible of ♂ toothed beneath; apical lunule inflected at both ends and a white margin connecting all the markings. Sexual differences in elytral tip: ♂ elytra at tip spiniform, retracted; ♀ outer margin entire, sutural margin emarginate. Length, 13.5—14.8 mm. = .54—.60 inch.

*Habitat*, Atlantic sea-coast from Mass. southward, on the marshes and mudflats beyond the sea-beaches. August, September. In the vicinity of N. Y. City this species was formerly abundant near Manhattan Beach but is becoming more rare.

**C. cuprascens** *Lec.*—Humeral angles distinct, underside green bronze, hind trochanters rufous; above greenish bronze, white basal dot, humeral lunule hooked at tip, middle band tortuous and confused before the dilated tip, apical lunule inflected at both ends and a white margin connecting all the markings; right mandible ♂ not toothed. Sexual differences in elytral tip: ♂ outer margin sinuate, tip obtuse; ♀ outer margin strongly sinuate with a tooth one-fourth from tip; tip rounded. Length, 13—14 mm. = .52—.56 inch.

*Habitat*, Ohio on mudflats, N. Ill., Ky., also Mont., Mo., Kan., Neb., Dak.

**C. puritana** *Horn.* (Fig. 21)—Humeral angles distinct, underside metallic blue, hind trochanters rufous; above brown bronze with white basal dot, humeral lunule hooked at tip, middle band tortuous and confused before the dilated tip, apical lunule inflected at both ends and a white margin connecting all the markings; right mandible ♂ not toothed; sexual differences in elytral tip: ♂ outer margin sinuate; tip subacute; ♀ outer margin strongly sinuate with a rectangular tooth one-fourth from apex. Length, 11.5 mm. = .46 inch.

*Habitat*, N. Y. (?), N. H., Mass. rare.

**C. macra** *Lec.*—Humeral angles distinct, underside greenish bronze, hind trochanters rufous; above brown bronze with white basal dot, humeral lunule hooked at tip, middle band tortuous and confused before the dilated tip, apical lunule inflected at both ends



and a white margin connecting the markings; right mandible ♂ not toothed; sexual differences in elytral tip: ♂ outer margin sinuate; tip prolonged; ♀ outer margin strongly sinuate with a rather obtuse tooth one-fourth from tip. Length, 13—14.2 mm. = .52—.58 inch.

*Habitat*, Ill. westward to Mo. and Kan.

**C. lepida** Dej. (Fig. 22)—Humeral angles distinct, underside unicolorous green bronze, hind trochanters rufous; anus testaceous; legs antennae and palpi pale; elytra white with a few green or bronze lines; outer margin ♂ scarcely sinuate, of ♀ sinuate. Length, 11—12.5 mm. = .44—.50 inch.

*Habitat*, Coney Island and Rockaway Beach, N. Y., Jamesburg, N. J. (inland), Trenton, N. J., Anglesea, N. J., also in Ill., Tex., Col., Iowa, Kan., Mo.

**C. rufiventris** Dej. (Fig. 23)—Humeral angles distinct, bluish green beneath, abdomen rufous; above dark brown with four small white dots, humeral, marginal, two discoidal and an apical lunule: the dots always small and sometimes wanting. Length, 11.5—12 mm. = .46—.48 inch.

*Habitat*, abundant on the hills in Kentucky opposite Cincinnati (Dury), also D. C., Va., W. Va., Md., Ala.

**C. Hentzii** Dej. (Fig. 24)—Differs from the preceding by the humeral lunule being entire or nearly so; the middle band is present and reaches the margin. Length, 11.5—12 mm. = .46—.48 inch.

*Habitat*, Massachusetts.

**C. marginipennis** Dej. (Fig. 27.)—Humeral angles distinct, beneath green, abdomen rufous; above olivaceous or brown with a submarginal band reaching from humerus to apex and lobed internally, slightly indicating the normal markings. Length, 11—14 mm. = .44—.56 inch.

*Habitat*, Banks of Susquehanna river below Harrisburg, Pa., and of the Delaware river near Callicoon, N. Y.

**C. abdominalis** Fab. (Fig. 26)—Humeral angles distinct, beneath blue, abdomen red; above shining black with a sutural row of shallow bluish foveae and submarginal and discoidal dots white and a narrow apical lunule. Length, 9—11 mm. = .36—.44 inch.

*Habitat*, N. J. and southward in pine forest. Da Costa, N. J., in July (Wenzel).

## EXPLANATION OF PLATE II.

Fig. 1.	<i>Tetracha carolina</i> Linn. Nat. size.	Fig. 14.	<i>Cicindela ancocisconensis</i> Harr.
" 2.	<i>Cicindela unipunctata</i> Fabr. "	" 15.	" <i>vulgaris</i> Say.
" 3.	" <i>celeripes</i> Lac. "	" 16.	" <i>repanda</i> Dej.
" 4.	" <i>dorsalis</i> Say. "	" 17.	" " 12. <i>guttata</i> Dej.
" 5.	" <i>scutellaris</i> var. <i>rugifrons</i> Dej.	" 18.	" <i>hirticollis</i> Say.
" 6.	" <i>longilabris</i> Say.	" 19.	" <i>punctulata</i> Oliv.
" 7.	" " var. <i>perviridis</i>	" 20.	" <i>marginata</i> Fabr.
	<i>Schff.</i>	" 21.	" <i>puritana</i> Horn.
" 8.	" <i>scutellaris</i> var. <i>Lecontei</i> Dej.	" 22.	" <i>lepida</i> Dej.
" 9.	" <i>sexguttata</i> Fabr.	" 23.	" <i>rufiventris</i> Dej.
" 10.	" " var. <i>patruela</i> Dej.	" 24.	" <i>Hentzii</i> Dej.
" 11.	" <i>purpurea</i> Oliv.	" 25.	" <i>tortuosa</i> Dej.
" 12.	" " var. <i>limbalis</i> Klug.	" 26.	" <i>abdominalis</i> Fabr.
" 13.	" <i>formosa</i> var. <i>generosa</i> Dej.	" 27.	" <i>marginipennis</i> Dej.

## LOCAL ENTOMOLOGICAL NOTES.

Members of the New York Entomological Society and all others, are solicited to contribute to this column, their rare captures, local lists and other items of interest relating to the insect fauna of New York city and vicinity.

## NOTE ON THE PERIODICAL CICADA.

By WM. T. DAVIS.

In the last number of the Journal mention was made of the various years since 1877 in which the periodical Cicada had appeared on Staten Island, and it was stated that Brood XII was expected in May and June.

Under some boards on the edge of the salt meadow at Old Place Creek on the Island, pupæ of this brood were found by Messrs. Leng, Granger and myself as early as the 8th of April. The ground was moist and the insects had erected the usual cones of mud, the boards not lying sufficiently close to the uneven ground to prevent their construction. The day was so cold that the salamanders under the same boards were stiff and inactive; they had to be held in the hand some time before they were able to walk away, but the Cicada pupæ were much more lively, and retreated down their tunnels when the day-light shown upon them. A little later in the month many pupæ were found in a garden at New Brighton, and on the 22d they were numerous in wooded districts under logs and stones as well as chips about the stumps of trees felled in the winter. Many more had no protection, and their presence was indicated by the small irregular cones of earth among the dead leaves. If these were approached silently the insects would be found at the surface within, but a heavy foot-fall in the vicinity was sufficient to frighten them into a retreat. By the time this number of the Journal is issued, the perfect insects will be in great numbers all over the Island and along the Hudson River.

In mentioning the Cicadas that appeared in 1881 on page 38 of this volume, they were referred incorrectly to Brood XVIII instead of XVII.